**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claims 1 – 11 (cancelled) [i.e. original claims 1 and 4-13 (cancelled)]

Claim 12 (previously presented) A process for stimulating nerves for conducting nerve research and investigations, said process comprising:

A) generating pulses of infrared light with a diode laser,
B) controlling said laser to produce laser pulses of desired duration and power to produce a desired pulse power profile,
C) directing at least a portion of said pulses of infrared light to a target comprising a single nerve or a portion of said single nerve so as to produce single mode stimulation of the nerve.

Claim 13 (previously presented) The process as in claim 12 wherein said infrared light is infrared light at wavelengths of about 980 nm.

Claim 14 (previoulsy presented) The process as in claim 12 wherein said nerve fibers are C fiber nociceptors.

Claim 15 (previously presented) The process as in claim 12 wherein said nerve fibers are A-delta fiber nociceptors.

Claim 16 (cancelled)

Claim 17 (previously presented) The process as in claim 12 wherein said controller comprises a personal computer.

Claim 18 (currently amended) The process as in claim 12 and further comprising a step ~~temperature sensor~~ for sensing temperature of said target.

Claim 19 (previously presented) The process as in claim 18 wherein said temperature sensor is configured to provide a temperature signal to said controller and said controller is programmed to utilize said temperature to provide feedback control of said laser in order to provide a desired temperature profile at said target.

Claim 20 (previously presented) The process as in claim 12 wherein said controller is

programmed to provide laser pulsed according to a predetermined pulse energy profile to produce pain but no tissue injury.

Claim 21 (previously presented) The process of claim 12 and further comprising the steps of increasing of power for pulse duration 50-150 ms from power level of 0.5 W with step less than 0.2 W with a diameter of irradiation area 0.5-2 mm lead to produce clear monomodal (single) pin prick pain and selective activation of A delta fibers.

Claim 22 (previously presented) The process of claim 12 and further comprising the steps of increasing of pulse duration from 0.3 to 20 sec with power level around 1.5 W with a diameter of irradiation area 5 mm-15 mm lead to inducing of clear monomodal hot pain and selective activation of C nociceptors.

Claim 23 (cancelled)

Claim 24 (currently amended) The process as in Claim 15 ~~wherein~~ and including a step of identifying the single type of stimulation ~~is~~ as prick pin stimulation.

Claim 25 (currently amended) The process as in Claim 14 ~~wherein~~ and including a step of identifying the single type of stimulation ~~is~~ as warmth stimulation.

Claim 26 (currently amended) The process as in Claim 14 ~~wherein~~ and including a step of identifying the single type of stimulation ~~is~~ as single hot stimulation.

Claim 27 (currently amended) The process as in Claim 12 ~~wherein~~ and including a step of identifying the single type of nerve ~~is~~ as a single nerve cell.

Claim 28 (previously presented) The process as in Claim 12 wherein the said infrared light is directed to said target using an optical fiber with a core diameter chosen from a group of diameters consisting of:

20 +/- 15 microns,
60 +- 15 microns and
100 +/- 15 microns.

Claim 29 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 1450 nm.

Claim 30 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 1850 nm.

Claim 31 (previously presented) The process as in Claim 12 wherein said infrared light is infrared light having a wavelength of about 810 nm.

Claims 32 – 34 (cancelled)